REMARKS

These remarks address the Examiner's comments made in the Office Action mailed 11/29/2007.

(2) Claims 1,7-8,10-13,24,26-27,30 rejected over Yasuhara with Reynolds

Claims 1,7-8,10-13,24,26-27,30 were rejected under 35 USC 103(a) as unpatentable over the US published application 2003-0053638 (now US Patent 7,190,798) to Yasuhara with US Patent No. 5,444,868 to Reynolds.

The office action begins (bottom of page 2) by stating that "Yasuhara discloses a car audio amplifier system". In reality, Yasuhara does not deal with amplifiers at all; rather, his invention is directed to a head unit system with an auxiliary head-unit-like rear controller. The whole purpose of his invention is to enable both front and rear seat passengers to have head unit style control over the audio/video being played on the rear seat overhead screen and headphones. In fact, Yasuhara includes only a single sentence that includes any form of the word "amplifier" – the final sentence of paragraph [0078] describes Figure 9 and says, "The volume control part 87 amplifies the audio signal in accordance with the volume signal and outputs the amplified signal to the front and rear speakers 10 and 11 via amplifiers 89." It is quite instructive to note that these amplifiers 89 are part of the head unit 2, as clearly seen in Figure 9.

The office action further states (bottom of page 2) that Yasuhara discloses "an amplifier unit". Yasuhara does not disclose any amplifier unit. That sentence of the office action further cites Figure 1 items 14, 3, 7-9 and Figure 9 items 14, 2, 89. Those items are, respectively: conventional wireless remote controller 14, conventional rear controller 3, conventional video game input jacks 7, conventional headphone jacks 8, conventional volume control knob ("button" in Yasuhara's parlance) 9, conventional head unit 2, and conventional amplifier transistors 89 which are located inside the head unit.

The office action fails to address, and repeats, the errors made in the previous office action concerning Reynolds. Specifically, the office action states that Reynolds discloses "a system wherein the control unit is physically separated from the amplifier", but has mischaracterized Reynolds. What Reynolds teaches is a head unit 16 ("control head") and an amplifier 14 ("power amp") which, rather than being separately placeable within a vehicle, are mated together by a common form factor transceiver 12 ("xceiver") for in-dash mounting. The

only purpose of this is to enable modular selection of amplifiers and head units – the buyer can pick whichever head unit he wants, and whichever amplifier he wants, and the installer can then mate those two randomly-selected Ericsson components together and install them, as one conjoined unit, into the head unit space of the buyer's vehicle dashboard. Reynold's amplifier does not have a separate control unit. In fact, Reynolds does not show his amplifier even having controls – it appears to simply amplify whatever signal arrives from the head unit, without any adjustable controls whatsoever.

The office action either overlooks or mischaracterizes key, express limitations in Applicant's Claims. Applicant will address each of the rejected claims in turn.

Claim 1

Claim distinguishes over Yasuhara and Reynolds by reciting that the amplifier control unit and the amplifier unit are physically separate components. If one were to build a car stereo using only the teachings of Yasuhara and Reynolds, without reference to Applicant's disclosure, the resulting car stereo would have a head unit mated to an amplifier by a common form factor transceiver (Reynolds), and would further have a rear seat overhead video screen with headphones and a controller, and the head unit would have the ability to select and control a rear seat a/v source and could turn rear seat control over to the rear controller (Yasuhara).

It would still have only a single, monolithic amplifier, and one without any amplifier control knobs, at that.

Claim 1 further distinguishes over Yasuhara and Reynolds by reciting that the amplifier control unit includes at least one control (knob etc.) for controlling a characteristic of how the circuitry modifies the signal. Neither Yasuhara nor Reynolds even mentions that their amplifier can modify the signal at all, much less that there would be a control for determining a characteristic of the modification. And even if one were to argue that amplifier controls such as gain, bass boost, low pass filter, etc. are well-known in the art, Applicant's response to that is that such controls are only known on (a) the head unit or (b) the amplifier itself, and NOT on a separate amplifier control unit – as is claimed.

Claim 7

Claim 7 distinguishes over Yasuhara and Reynolds (and the rest of the prior art) by including the limitations of Claim 1 and further by specifying that all of the amplifier's controls

are located on the separate amplifier control unit. The office action appears to cite Yasuhara's rear controller 13 and remote controller 14 on this point. However, those are merely head unit controllers, not amplifier controllers. Yasuhara's Figure 7 illustrates his rear controller 3, and clearly shows controls such as source selector buttons 62 and "rear audio source operating buttons 63" (paragraph [0070]), none of which has anything to do with amplifier controls. Yasuhara's Figure 8 illustrates his remote controller 14, and clearly shows controls such as source selector buttons 71 and DVD playback control buttons 72 and 73. Not only do Yasuhara's rear controller and remote controller not include amplifier controls such as gain, low pass filter, and the like, they don't even include a volume control knob – they cannot control any aspect of the amplifier.

Claim 8

Claim 7 distinguishes over Yasuhara and Reynolds (and the rest of the prior art) by including the limitations of Claim 1 and further by specifying that the controlled amplifier characteristic comprises gain. The office action cites Yasuhara's Figures 1 and 9 and paragraph [0038] on this point. However, Yasuhara never mentions gain in those parts, nor elsewhere. Paragraph [0038] discusses a "volume button" for adjusting the "volume of the wireless headphone". This is not amplifier gain. At best, it is roughly analogous to the volume control knob 14 on the head unit in Applicant's FIG. 1, and is certainly not analogous to the gain control knob "G" on the amplifier control unit in Applicant's FIG. 7.

Claim 10

Claim 10 distinguishes over Yasuhara and Reynolds (and the rest of the prior art) by including the limitations of Claim 1 and further by specifying that the amplifier has a docking bay for the separate amplifier control unit. The office action says that Reynolds teaches this at Figures 1A and 2 and at col. 5 lines 23-30. Reynolds does not show a docking bay; all he teaches is a "common transceiver module" which mates end-to-end with the amplifier and with the head unit. Note, further, that Claim 10 requires that the amplifier have a docking bay into which can be docked an amplifier control unit on which is located at least one control for the amplifier. Reynolds' transceiver is a dumb pass-through device, serving only to mechanically and electrically mate the amplifier and the head unit – it does not have any controls whatsoever. The

office action never even attempts to argue that Reynolds' amplifier has a docking bay into which one could dock anything, much less an amplifier control unit.

Finally, it must be noted that the claim recites a "docking bay" and not merely, e.g. a "docking connector" or a "docking port". The meaning of the word "bay" cannot simply be ignored. It is an important limitation on the scope of Claim 10. And nothing in Reynolds or Yasuhara teaches a "bay" of any sort. Quite the contrary, Reynolds shows that his amplifier and his transceiver module are mated end-to-end with a gasket 26 between them to make the butt-joint waterproof.

Claim 11

Claim 11 distinguishes over Yasuhara and Reynolds (and the rest of the prior art) by including the limitations of Claim 1 and further by specifying that the docking bay has an input connector that mates with an output connector of the docked amplifier control unit. The office action cites Reynolds' connector 28 on this point. This ignores not only the fact that connector 28 connects to the head unit's ribbon cable 27 rather than to the amplifier, but also ignores the fact that this connector is on the transceiver module rather than, as required by Claim 11, on the amplifier unit. And, further, it ignores the fact that Claim 11 requires that the connector be part of a docking bay of the amplifier unit.

Claim 12

Claim 12 distinguishes over Yasuhara and Reynolds (and the rest of the prior art) in much the same manner as does Claim 1, including at least by reciting that the amplifier control unit and the amplifier unit are distinct, and that the amplifier controls are on the amplifier control unit and include a gain control. Nothing in the prior art suggests separating the amplifier function and the amplifier control functions of a car audio amplifier into two distinct components. The office action again attempts to equate Yasuhara's rear controller or remote controller with the claimed amplifier control unit. And, again, Yasuhara's rear controller and remote controller amount to nothing more than auxiliary head unit control panels – they have nothing whatsoever to do with amplifier controls.

The office action again attempts, incorrectly, to suggest that Yasuhara teaches a gain control, when in fact he is utterly silent on the topic. The cited Figure 1 shows a head unit, rear controller, speakers, etc. but not even an amplifier, much less an amplifier gain control. The cited

Figure 9 shows the rear controller, the speakers, and the head unit, including some of the head unit's internal circuits such as amplifiers 89 and volume control (knob) 87, but, again, nothing having to do with any amplifier control, much less gain.

It appears that gain is not understood. http://en.wikipedia.org/wiki/Gain teaches that "In electronics, gain is a measure of the ability of a circuit (often an amplifier) to increase the power or amplitude of a signal. It is usually defined as the mean ratio of the signal output of a system to the signal input of the same system." Setting an amplifier's gain control determines this ratio – it sets the "multiplication factor" of the amplifier. By contrast, adjusting the "volume knob" merely raises or lowers the level of the signal that is input to the amplifier – it in no way alters the amplification ratio of the amplifier. Assume an amplifier has its gain set at 4. Given a 1 volt input signal, the amplifier will output a 4 volt signal. Change the volume knob so the input signal is 2 volts, and the amplifier will output an 8 volt signal. Now change the gain control knob from 4 to 10. Given that original 1 volt input signal, the amplifier will output a 10 volt signal. Change the volume knob so the input signal is 2 volts, and the amplifier will output a 20 volt signal.

One simply cannot equate a volume control with a gain control.

Returning to the office action, it is stated that it would be obvious to "modify Yasuhara by incorporating the amplifier and further wherein the amplifier input connector coupled to the control unit output connector to receive the modified audio signal". Applicant respectfully traverses any allegation that any combination of Yasuhara and Reynolds would obviate any of the Claims at hand.

The primary defect in the reasoning behind the proposed modification is that neither Yasuhara nor Reynolds teaches an amplifier control unit – indeed, neither teaches amplifier controls at all, regardless of where they are located. Applicant refers the Examiner the "if one were to build a car stereo" discussion re Claim 1, above. The combination of Yasuhara and Reynolds would still lack the very component which is at the heart of the present claimed invention – the amplifier control unit.

Claim 13

Claim 13 distinguishes over Yasuhara and Reynolds (and the rest of the prior art) by including the limitations of Claim 12, and further by reciting that the cable connects the amplifier input connector (of the amplifier unit) to the control unit output connector (of the amplifier

control unit). Reynolds shows some ribbon cables, and Yasuhara shows some wires, but, critically, none of them is connected at either end to an amplifier control unit, for the simple reason that there isn't any such unit to which they might be connected.

Claim 24

Claim 24 distinguishes over Yasuhara and Reynolds (and the rest of the prior art) by including the limitations of Claim 12, and further by reciting the limitation of a docking bay in the amplifier unit, into which the amplifier control unit can be docked. As clearly demonstrated above, neither Yasuhara nor Reynolds has a docking bay. In fact, Yasuhara doesn't even have an external amplifier.

Claim 26

Claim 26 distinguishes over Yasuhara and Reynolds (and the rest of the prior art) by specifying that the external amplifier, the amplifier control unit, and the head unit are distinct components, and further by reciting the step of adjusting an amplifier control on the amplifier control unit to obtain a desired acoustic result while being positioned within the passenger compartment. In the prior art, amplifier controls were located either on the head unit (such as those accessible via an on-screen menu) or on the amplifier (such as thos on the back of the amplifier of FIG. 5). None of the prior art suggests a third component – an amplifier control unit – separate from both the head unit and the amplifier, bearing the amplifier controls.

The office action suggests that Yasuhara has "all channels gain controls for the amplifier being located on the control unit" – presumably again this "control unit" is either the rear controller 3 or the remote controller 14. But, as explained above, neither of those has an amplifier gain control. In fact, neither of them even has a volume control.

The office action further cites Yasuhara's Figure 1 item 2 (head unit), item 3 (rear controller), item 4 (DVD player), item 7 (video game input jacks) and items 10-11 (front and rear speakers) with Figure 9 item 2 (head unit), plus Reynolds' Figures 1-2 items 14 (external amplifier) and 16 (transceiver module) as somehow teaching Applicant's claimed method. However, as demonstrated above, that combination cannot be used to adjust an amplifier control of an amplifier control unit which is distinct from the head unit and from the amplifier unit, to modify the sound. The combination lacks an amplifier control unit, and cannot be cited to obviate a claimed method of using an amplifier control unit.

Claim 27

Claim 27 distinguishes over Yasuhara and Reynolds by including the limitations of Claim 26, and further by specifying that the step of adjusting the amplifier control comprises adjusting a channel gain control – on the separate amplifier control unit.

Claim 30

Claim 30 distinguishes over Yasuhara and Reynolds by including the limitations of Claim 26, and further by reciting the steps of removing the amplifier control unit from the passenger compartment and docking it in the amplifier's docking bay. Yasuhara and Reynolds do not have a docking bay. Reynolds does teach (col. 5 lines 37-44) that "the control head and adapter may be located remotely from the combined transceiver and power amplifier. For example, the control head in this form may be mounted on the dash of a vehicle and electrically coupled to the transceiver and selected power amplifier located in the trunk of the vehicle." This is nothing more than a conventional trunk-mounted amplifier system, and it would appear that, in this configuration, the transceiver module 12 is entirely unnecessary, as the ribbon cable 27 from the head unit could be plugged directly into the amplifier's un-numbered connector instead of ribbon cable 23. But, regardless of whether the transceiver module is or is not included in the trunk-mounted configuration, the simple facts remain that (i) this system lacks an amplifier control module, (ii) this system lacks amplifier controls entirely, (iii) there is no suggestion that the unmentioned amplifier controls could somehow be operated from within the passenger compartment to achieve a desired sound and then be moved to the trunk, and (iv) this system lacks a docking bay. Each of these, by itself, is a fatal flaw in the rejection of Claim 30.

(3) Claims 2,5,14-19,21,25,28-29 rejected over Yasuhara with Reynolds and AAPA

Claims 2,5,14-19,21,25,28-29 were rejected under 35 USC 103(a) as unpatentable over the Yasuhara and Reynolds together with Applicant's admitted prior art.

Claim 2

Claim 2 distinguishes over Yasuhara with Reynolds and AAPA by including the limitations of Claim 1, and further by reciting that the pre-amplifier is included in the circuitry of the amplifier control unit. Pre-amplifiers are well-known. However, as is clearly explained in the AAPA, the known pre-amps are located in the head unit. The pre-amp output signals are what are carried on conductors 18 (FIG. 1) to the external amplifier. Even though Yasuhara does not

discuss pre-amp signals (because his invention has nothing whatsoever to do with amplifiers), it is clear that that is what would be input to his internal amplifiers 89 (Figure 9). However, his pre-amps (which must be included in the output stages of the AM/FM Radio 82, Cassette Tape 83, etc. or perhaps in the Volume Control 87) cannot be moved to a component – an amplifier control module – which neither he nor Reynolds nor the AAPA teaches. The first suggestion of moving the pre-amp to a separate amplifier control unit is, in fact, in Applicant's own patent application.

Claim 5

Claim 5 distinguishes over Yasuhara with Reynolds and AAPA by including the limitations of Claim 1, and further by reciting that the amplifier unit amplifies signals at a selected one of a plurality of input connectors. By way of contrast, each of Yasuhara's amplifiers 89 has exactly one input. Yasuhara's amplifiers cannot amplify signals from selectable inputs. Similarly, Reynolds' amplifier includes exactly one input connector, to which ribbon cable 23 is connected. Reynolds' amplifier cannot amplify signals from selectable inputs. And, similarly, the AAPA (FIG. 5) teaches an amplifier having exactly one set of input connectors 32; there are multiple RCA jacks for the multiple channels, but they come from a single source – the head unit. The amplifier 16 always amplifies the same input signals from the same input connectors.

By way of contrast, Claim 5 recites plural, selectable input connectors. These may be, for example, (i) the RCA jacks "FL" etc. and (ii) the DIN connector 74 in FIG. 9.

Claim 14

Claim 14 distinguishes over Yasuhara, Reynolds, and the AAPA by including the limitations of Claims 12 and 13, and further by reciting that the amplifier control unit has a DIN output connector, the amplifier unit has a DIN input unit, and a DIN umbilical cable connects them. The office action mistakenly states that AAPA DIN connector item 38 in FIG. 4 is "for the purpose of interconnecting/attaching the head unit to the external amplifier." Item 38 is a DIN output, but, most tellingly, corresponding AAPA amplifier 16 in FIGS. 1-2 has no DIN connector, input or output. The head unit's DIN connector 38 is for connecting to the wiring harness of a vehicle lacking an external amplifier – the DIN connector 38 carries speaker signals, not pre-amp signals; it was not discussed in any detail, because it is largely irrelevant to the invention.

The AAPA amplifier 16 receives pre-amp input signals at its RCA input jacks 32 only.

Nothing in Yasuhara, Reynolds, nor the AAPA suggests using a DIN connector for connecting the amplifier to anything – much less to an amplifier control unit that they don't teach.

The office action takes official notice that DIN umbilical cables are known. Applicant acknowledges this, but respectfully asserts that, until Applicant's disclosure, it has been completely unknown and unthought to use a DIN umbilical to connect an amplifier unit to a separate amplifier control unit which is not a head unit.

Claim 15

Claim 15 distinguishes over Yasuhara, Reynolds, and the AAPA by including the limitations of Claim 12, and further by reciting that all of the amplifier system's gain controls are located on the amplifier control unit. Yasuhara, Reynolds, and the AAPA don't teach an amplifier control unit at all, much less one that has any specified set or subset of the amplifier system's controls.

Claim 16

Claim 16 distinguishes over Yasuhara, Reynolds, and the AAPA by including the limitations of Claim 12, and further by reciting that the amplifier control unit (which the prior art does not teach) includes a filter control.

Claim 17

Claim 17 distinguishes over Yasuhara, Reynolds, and the AAPA by including the limitations of Claim 12, and further by reciting that the amplifier control unit (which the prior art does not teach) includes a delay control

Claim 18

Claim 18 distinguishes over Yasuhara, Reynolds, and the AAPA by including the limitations of Claims 12 and 17, and further by reciting that the amplifier control unit (which the prior art does not teach) includes a phase control. None of the cited art mentions a phase control.

Claim 19

Claim 19 distinguishes over Yasuhara, Reynolds, and the AAPA by including the limitations of Claims 12, 17, and 18, and further by reciting that the amplifier control unit (which the prior art does not teach) includes a bass boost control.

Claim 21

Claim 21 distinguishes over Yasuhara, Reynolds, and the AAPA by including the limitations of Claim 12, and further by reciting that the amplifier control unit (which the prior art does not teach) includes an equalizer. None of the cited art mentions equalization.

Claim 25

Claim 25 distinguishes over Yasuhara, Reynolds, and the AAPA by including the limitations of Claim 12, and further by reciting that the amplifier control unit (which the prior art does not teach) includes a lengthy list of amplifier controls, most of which are completely unmentioned by the cited prior art.

Claim 28

Claim 28 distinguishes over Yasuhara, Reynolds, and the AAPA by including the limitations of Claims 26-27, and further by reciting the step of adjusting a filter control on an amplifier control unit (which the prior art does not teach).

Claim 29

Claim 29 distinguishes over Yasuhara, Reynolds, and the AAPA by including the limitations of Claim 26-28, and further by reciting using the amplifier control unit (which the prior art does not teach) to level adjust the head unit signals and auxiliary signals.

(3) Claims 22-23 rejected over Yasuhara with Reynolds and Koulopoulos

Claims 22-23 were rejected under 35 USC 103(a) as unpatentable over Yasuhara and Reynolds together with US Patentt 5,243,344 to Koulopoulos.

Koulopoulos teaches a sigma-delta D-to-A converter which "volume control is performed on the audio signal in both the digital domain and the analog domain in order to optimize performance and minimize noise." That has nothing to do with the present invention. The cited portion of Koulopoulos (col. 14 lines 45-55) teaches a selector for selecting between multiple input signals, but is silent as to adjusting volume control accordingly.

Claim 22

Claim 22 distinguishes over Yasuhara, Reynolds, and Koulopoulos by including the limitations of Claim 12, and further by specifying that the amplifier control unit (which Yasuhara Reynolds, and Koulopoulos entirely lack) includes an auxiliary input connector.

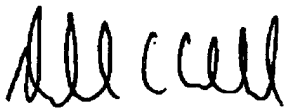
Claim 23

Claim 23 distinguishes over Yasuhara, Reynolds, and Koulopoulos by including the limitations of Claims 12 and 22, and further by specifying that the amplifier control unit includes means for compensating for input level differences between signals from the head unit and signals from the auxiliary unit e.g. MP3 player.

CONCLUSION

Applicant respectfully requests allowance of the claims. The art cited neither anticipates nor obviates the claimed subject matter.

Respectfully submitted,



Richard C. Calderwood, Attorney for the Applicant
Reg. No. 35,468
phone (503) 313-4004

Date:

7/19/08

